

Application No.: 10/761,101  
 Response dated: April 8, 2008  
 Reply to Office Action: January 3, 2008

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# LISTING OF CLAIMS

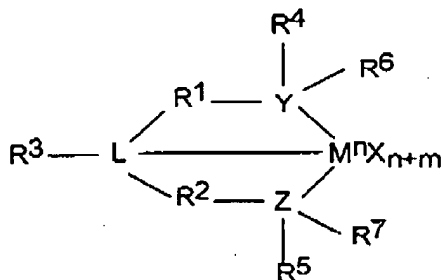
1. (Currently Amended) A process for polymerizing olefin(s) comprising, combining said olefin(s), a catalyst composition having a first catalyst [system] component comprising a Group 15 containing [bidentate or] tridentate ligated Group 3 to 7 metal compound wherein the Group 3 to 7 metal atom is bound to at least one leaving group and to [at least two] three Group 15 atoms, and wherein [at least one of the at least] two of the Group 15 atoms [is bound to a group 15 or 16 atom] are each bound to the third Group 15 atom through a bridging group; and a second catalyst [system] component,

wherein said second catalyst component is a metallocene compound;

wherein said first catalyst component and said second catalyst component are added to a polymerization reactor in one of a solution, a suspension or an emulsion;

wherein the polymerization process is a continuous gas or slurry phase process, and

wherein the Group 15 containing tridentate ligated hafnium catalyst compound is represented by the formula:



Formula (I)

wherein M is a Group 3 to 7 metal;

each X is independently a leaving group;

n is the oxidation state of M;

Application No.: 10/761,101  
Response dated: April 8, 2008  
Reply to Office Action: January 3, 2008

m is the formal charge of the Y, Z and L ligand;

L is a Group 15 element;

Y is a Group 15 element;

Z is a Group 15 element;

R<sup>1</sup> and R<sup>2</sup> are independently a linear, branched, or cyclic C<sub>2</sub> to C<sub>20</sub> alkyl group;

R<sup>3</sup> is a hydrocarbon group, hydrogen, a halogen, or a heteroatom containing group;

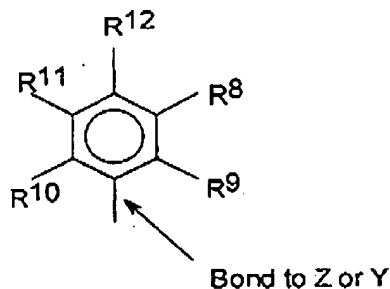
R<sup>4</sup> and R<sup>5</sup> are independently an alkyl group, an aryl group, substituted aryl group, a cyclic alkyl group, a substituted cyclic alkyl group, a cyclic arylalkyl group, a substituted cyclic arylalkyl group or multiple ring system;

R<sup>1</sup> and R<sup>2</sup> may be interconnected to each other, and/or R<sup>4</sup> and R<sup>5</sup> may be interconnected to each other; and

R<sup>6</sup> and R<sup>7</sup> are independently absent, or hydrogen, an alkyl group, halogen, heteroatom or a hydrocarbonyl group.

2. (Cancelled)
3. (Cancelled)
4. (Cancelled)
5. (Cancelled)
6. (Cancelled)
7. (Currently Amended) The process of [claim 6] Claim 1, wherein R<sup>4</sup> and R<sup>5</sup> are represented by the formula

Application No.: 10/761,101  
 Response dated: April 8, 2008  
 Reply to Office Action: January 3, 2008



wherein

$R^8$  to  $R^{12}$  are each independently hydrogen, a  $C_1$  to  $C_{40}$  alkyl group, a halide, a heteroatom, a heteroatom containing group containing up to 40 carbon atoms, wherein any two R groups may form a cyclic group and/or a heterocyclic group, and wherein the cyclic groups may be aromatic.

8. (Currently Amended) The process of claim 7 wherein [ $R^9$ ,  $R^{10}$ , and  $R^{12}$ ]  $R^8$  to  $R^{12}$  are independently a methyl, ethyl, propyl or butyl group.
9. (Currently Amended) The process of claim 8 wherein [ $R^9$ ,  $R^{10}$ , and  $R^{12}$ ]  $R^8$  to  $R^{12}$  are methyl groups[, and  $R^8$  and  $R^{11}$  are hydrogen].
10. (Currently Amended) The process of claim 9 wherein M is a Group 4 metal, L, Y, and Z are independently nitrogen,  $R^1$  and  $R^2$  are a  $C_2$  to  $C_6$  hydrocarbon radical,  $R^3$  is hydrogen, and  $R^6$  and  $R^7$  are absent.
11. (Cancelled)
12. (Currently Amended) The process of claim [2] 1 wherein the second catalyst [system] component comprises a [bulky ligand] metallocene compound of the general formula  $[L^D M Q_2 (Y Z) X_n]$



wherein M is a Group [3 to 16 metal] 4, 5 or 6 metal atom,

$[L^D]$  is a bulky ligand that is bonded to M,

Application No.: 10/761,101  
Response dated: April 8, 2008  
Reply to Office Action: January 3, 2008

L<sup>A</sup> and L<sup>B</sup> are selected from the group consisting of cyclopentadienyl, tetrahydroindenyl, indenyl, fluorenyl, and substituted versions thereof, L<sup>A</sup> and L<sup>B</sup> are each bonded to M;

each Q is a [univalent anionic ligand bonded to M] monoanionic leaving group.

[Q<sub>2</sub>(YZ) forms a uncharged polydentate ligand;]

[n is 1 or 2]

A is a divalent bridging group containing at least one Group 13 to Group 16 atom; and

n is 0, 1 or 2.

13.-14. (Cancelled)

15. (Currently Amended) The process of claim 12 wherein M is a Group 4 metal [and L<sup>D</sup> is an indenyl group or a fluorenyl group].

16. (Cancelled)

17. (Currently Amended) The process of claim 1 wherein the catalyst [systems comprise] composition further comprises an activator.

18. (Cancelled)

19. (Original) The process of claim 1 wherein the olefin(s) are ethylene and one or more other olefin(s).

20. (Currently Amended) The process of claim [2 wherein the Group 15 containing bidentate or tridentate ligated Group 3 to 7 metal compound and the bulky ligand metallocene compound] 1 wherein said first catalyst component and said second catalyst component are present in a molar ratio of 1:99 to 99:1.

21. (Currently Amended) The process of claim [2 wherein the Group 15 containing bidentate or tridentate ligated Group 3 to 7 metal compound and the bulky ligand metallocene compound] 1 wherein said first catalyst

Application No.: 10/761,101

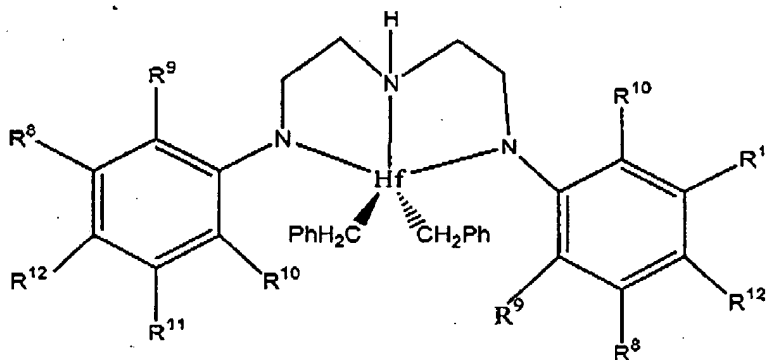
Response dated: April 8, 2008

Reply to Office Action: January 3, 2008

component and said second catalyst component are present in a molar ratio of 20:80 to 80:20.

22.-48. (Cancelled)

49. (New) The process of Claim 1, wherein the Group 15 containing tridentate ligated Group 3 to 7 metal compound is represented by the formula:



wherein R<sup>8</sup> to R<sup>12</sup> are each independently a methyl, ethyl, propyl, or butyl group.